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PATENT AND TRADEMARK OFFICE

APPLICANTS: Omar Habib Khan, et al.
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EXAMINER: Chelcie L. Daye
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APPEAL BRIEF

Pursuant to the requirements of 37 C.F.R. § 41.37, please consider this document as the Appellants' Brief in the present application currently before the Board of Patent Appeals and Interferences (hereinafter "the Board").

I. Real Party in Interest

The subject application is owned by the Google Inc. Assignment from inventors Omar Habib Khan, Niniane Wang, and Stephen R. Lawrence to Google Inc. was recorded on September 29, 2004 at Reel 015835, Frame 0043.

II. Related Appeals and Interferences

There are no known related appeals or interferences that may directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims

Claims 1, 3-13, 15-16, 19-20, 22-33, 36-38 and 40-41 were presented and are currently pending in the present application. Claims 2, 14, 17-18, 21, 34-35, 39 and 42 are cancelled. Claims 1, 3-13, 15-16, 19-20, 22-33, 36-38 and 40-41 were rejected in the final Office Action dated September 19, 2008 (hereinafter "the Office Action"). Specifically, Claims 1, 3-7, 10-11, 15, 19-20, 22-27, 30, 36-38 and 40-41 are rejected under 35 USC § 103(a) as allegedly being unpatentable over Malik, US Pat. No. 7,007,085 in view of Bharat, US Pat. No. 6,112,203 and further in view of Dumais, US Pat. No. 7,162,473. Additionally, claims 8-9, 12-13, 16, 28-29 and 31-33 are rejected under 35 USC § 103(a) as allegedly being unpatentable over Malik in view of Bharat, further in view of Dumais and further in view of Maybury, US Pat. No. 6,961,954.

The rejections of claims 1, 3-13, 15-16, 19-20, 22-33, 36-38 and 40-41 are hereby appealed.

IV. Status of Amendments

All claim amendments submitted to the Examiner during prosecution of the present application have been entered. No amendments were proposed subsequent to issuance of the Office Action. The claims involved in the present appeal are presented in Section VIII of this document.

V. Summary of Claimed Subject Matter

In general, embodiments of the claimed invention provide search results to a user based on a plurality of named entities that are identified within an event that is associated with an article. A named entity is a term, phrase, or other identifier that has been noted as being relevant to the user. (e.g., specification, ¶ [0031].) The claimed invention determines a weight to associate with each of the plurality of named entities identified within the event. (e.g., specification, ¶ [0040].) Responsive to determining the weight to associate with each of the plurality of named entities, an implicit search query is automatically created based at least in part on the plurality of named entities and the associated weight, where the implicit search query is focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight. (e.g., specification, ¶¶ [0040]-[0041].)

Claim 1: A computer-implemented method for providing search results to a user, the method comprising:

- determining a list of named entities within a data store on a user's computer; (e.g., specification, ¶¶ [0015] and [0032])
- identifying an event wherein the event comprises a user interaction with an article on the user's computer; (e.g., specification, ¶¶ [0039] and [0054])
- identifying a plurality of named entities within the event; (e.g., specification, ¶ [0039])
- determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store; (e.g., specification, ¶¶ [0040]-[0041])
- responsive to determining the weight to associate with each of the plurality of named entities, automatically creating an implicit search query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight; (e.g., specification, ¶¶ [0040]-[0042])
- responsive to creating the implicit search query, retrieving from the user's computer a plurality of search results relevant to the search query; (e.g., specification, ¶ [0062]) and
- displaying the retrieved plurality of search results. (e.g., specification, ¶ [0063])

Claim 19: A computer-implemented method for providing search results to a user, the method comprising:

determining a list of named entities within a data store on a user's computer; (e.g., specification, ¶¶ [0015] and [0032])
receiving an event wherein the event comprises a user interaction with an article on the user's computer; (e.g., specification, ¶¶ [0031] and [0039])
identifying a plurality of named entities in the event; (e.g., specification, ¶ [0039])
determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store; (e.g., specification, ¶¶ [0040]-[0041])
responsive to determining the weight to associate with each of the plurality of named entities, automatically creating an implicit query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight; (e.g., specification, ¶¶ [0040]-[0042])
responsive to creating the implicit search query, transmitting the implicit query to a search engine; and (e.g., specification, ¶ [0062])
receiving a result set from the search engine, the result set comprising one or more article identifiers; and responsive to an associated score exceeding a threshold, outputting the one or more article identifiers. (e.g., specification, ¶ [0020] and [0046])

Claim 20: A computer-readable medium on which is encoded program code, the program code comprising: (e.g., specification, ¶¶ [0009]-[0010])

program code for determining a list of named entities within a data store on a user's computer (e.g., specification, ¶¶ [0015] and [0032])
program code for identifying an event wherein the event comprises a user interaction with an article on the user's computer; (e.g., specification, ¶¶ [0039] and [0054])
program code for identifying a plurality of named entities within the event; (e.g., specification, ¶ [0039])
program code for determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store; (e.g., specification, ¶¶ [0040]-[0041])
program code for automatically creating an implicit search query, responsive to determining the weight to associate with each of the plurality of named entities, the implicit query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight; (e.g., specification, ¶¶ [0040]-[0042])
program code for retrieving from the user's computer a plurality of search results relevant to the search query responsive to creating the implicit search query; (e.g., specification, ¶ [0062]) and

program code for displaying the retrieved plurality of search results. (e.g., specification, ¶ [0063])

Claim 36: A computer-readable medium on which is encoded program code, the program code comprising: (e.g., specification, ¶¶ [0009]-[0010])

program code for determining a list of named entities within a data store on a user's computer; (e.g., specification, ¶¶ [0015] and [0032])

program code for receiving an event wherein the event comprises a user interaction with an article on the user's computer; (e.g., specification, ¶¶ [0031] and [0039])

program code for identifying a plurality of named entities in the event; (e.g., specification, ¶ [0039])

program code for determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store; (e.g., specification, ¶¶ [0040]-[0041])

program code for automatically creating an implicit query, responsive to determining the weight to associate with each of the plurality of named entities, the implicit query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight; (e.g., specification, ¶¶ [0040]-[0042])

program code for transmitting the implicit query to a search engine responsive to creating the implicit search query; (e.g., specification, ¶ [0062]) and

program code for receiving a result set from the search engine, the result set comprising one or more article identifiers; and responsive to an associated score exceeding a threshold level of relevance, outputting the one or more article identifiers. (e.g., specification, ¶ [0020] and [0046])

VI. Grounds of Rejection to be Reviewed on Appeal

The grounds of rejection presented for review in the instant appeal are as follows:

1. Whether claims 1, 19-20 and 36 are unpatentable under 35 U.S.C. § 103(a) over

Malik in view of Bharat and further in view of Dumais.

VII. Argument

Claims 1, 19-20 and 36 are patentable over Malik in view of Bharat and further in view of Dumais.

To establish a prima facie case of obviousness, the prior art reference (or references when combined) must suggest or teach *all* the limitations of the claimed invention. *See In re Royka*,

490 F.2d 981 (C.C.P.A. 1974); 35 U.S.C. §103(a); MPEP §§ 706.02(j), 2143.03. If even a single claim limitation is not taught or suggested by the prior art, then that claim cannot be rejected under § 103 over the prior art. *See In re Glass*, 472 F.2d 1388, 1392 (C.C.P.A. 1973). The Examiner's rejection of claims 1, 19-20 and 36 is improper because the suggested combination of Malik, Bharat and Dumais does not teach or suggest all of the limitations of the rejected claims.

Independent claim 1 recites a computer-implemented for providing search results to a user, the method comprising:

- determining a list of named entities within a data store on a user's computer;
- identifying an event wherein the event comprises a user interaction with an article on the user's computer;
- identifying a plurality of named entities within the event;
- determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store;
- responsive to determining the weight to associate with each of the plurality of named entities, automatically creating an implicit search query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight;**
- responsive to creating the implicit search query, retrieving from the user's computer a plurality of search results relevant to the search query; and
- displaying the retrieved plurality of search results.

These features of the claimed invention are beneficial as the implicit search query that is automatically created responsive to determining the weight to associate with the plurality of named entities is based on the weighted named entities themselves. The aspect of weighting named entities allows the query system to focus on terms of potentially greater interest to the user.

Malik does not disclose or suggest “responsive to determining the weight to associate with each of the plurality of named entities, automatically creating an implicit search query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight.” Malik discloses methods allowing users to obtain information correlated or corresponding to a communication by logging the event in a message log and providing information related to the event based on the user’s preferred method of communication. (Malik, col. 9, lns. 10-40.) As noted by the Examiner, Malik fails to disclose or suggest determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store. (Office Action of 2/19/08, pg. 3.) Thus, because Malik does not determine an “associated weight,” it logically follows that Malik does not disclose or suggest “automatically creating an implicit search query based at least in part on the plurality of named entities and **the associated weight.**”

Bharat does not remedy the deficiencies of Malik. Bharat discloses a method for ranking a set of documents according to their content and their connectivity by using topic distillation. (Bharat, Abstract.) Bharat applies term frequency weighting to determine relevance weights that measure the similarity between a query topic and pages **within a result set** that were returned as a result of a query. (Bharat, col. 5, lns. 21-23.) Bharat discloses that the determined relevancy weights of the pages are used to prune the pages from a graph that will be used to rank the remaining documents if the weights fall below a threshold. (Bharat, col. 7, lns. 10-39.) There is no hint, mention or teaching in Bharat of automatically creating an implicit search query based at least in part on the plurality of named entities and **the associated**

weight, nor any hint, mention or teaching of the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight, as recited in claim 1. Bharat simply discloses that the relevance weights are determined for pages in a result set that have been provided in response to a query. That is, the relevance weights are only determined **after** an unweighted search query has been executed on a query topic. In contrast, the claimed invention automatically creates an implicit search query based at least in part on the plurality of named entities and **the associated weight**.

Furthermore, if the teachings of Malik and Bharat were combined as suggested by the Examiner, the result would not correspond to the claimed feature of claim 1. The weighting of Bharat would be utilized to rank the resulting information corresponding to the user communication disclosed in Malik because Bharat discloses applying weighting only **after** a result set (e.g., the information corresponding to the communication of the user) has been provided. Thus, the resulting combination merely would translate to a weighted and ranked result list of relevant information associated with the user's communication. In contrast, in the claimed invention a weight to associate with each of the plurality of named entities is determined and an implicit search query is created based at least in part on the plurality of named entities and **the associated weight**. Therefore, Bharat does not remedy the deficiencies of Malik for the reasons stated above.

Dumais does not remedy the deficiencies of Malik and Bharat. Dumais discloses a method for providing content-access-based information retrieval. (Dumais, Abstract.) User activity such as creating documents, reading email or viewing web pages triggers automatic indexing without additional work being performed by the user. (Dumais, cols. 1-2, lns. 65-67 and 1.) As noted by the Examiner, an implicit query may be generated when a user receives a

telephone call from a particular person which prompts the retrieval of the last five e-mails from the person. (Dumais, col. 5, lns. 29-31.) Thus, Dumais simply discloses the generation of implicit queries in response to user activity (e.g., receiving the telephone call from a person) which prompts retrieval of information that is relevant to the user activity (e.g., retrieving e-mails from the person) from the index. As there is no hint, mention or suggestion in Dumais of determining a weight to associate with each of a plurality of named entities, it logically follows that Dumais does not disclose or suggest “automatically creating an implicit search query based at least in part on the plurality of named entities and the associated weight.” Thus, Dumais does not remedy the deficiencies of Malik and Bharat.

Independent claims 19-20 and 36 recite similar features as claim 1. The Examiner provides the same rejection for claims 19-20 and 36 as for claim 1, and thus the rejections incorporate the same deficiencies discussed above with respect to claim 1. Accordingly, Malik, Bharat and Dumais, either alone or in combination do not disclose or suggest the specific features of the claimed invention necessary for prima facie obviousness under § 103(a). Appellants therefore respectfully submit that this ground of rejection is unjustified and request reconsideration and allowance of the claims.

The Examiner applied Maybury to only the dependent limitations in the claims. Maybury does not remedy the deficiencies of Malik, Bharat and Dumais discussed above in regards to the rejection of independent claims 1, 19-20 and 36.

Maybury discloses techniques for automated analysis of multimedia, such as a news broadcast. (Maybury, Abstract.) The user navigates to related stories by clicking on data points on a graph of the frequency of named entities versus date. (Maybury, col. 16, lns. 48-61.) As there is no hint, mention or suggestion in Maybury of “responsive to determining the

weight to associate with each of the plurality of named entities, automatically creating an implicit search query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight,” Maybury does not disclose or suggest the recited features of claims 1, 20 and 36.

Accordingly, Malik, Bharat, Dumais and Maybury, either alone or in combination do not disclose or suggest the specific features of the claimed invention necessary for prima facie obviousness under § 103(a). Appellants therefore respectfully request reconsideration and allowance of the claims.

Respectfully Submitted,
OMAR HABHB KHAN, ET AL.

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VIII. Claims Appendix

The claims involved in the instant appeal are as follows:

1. A computer-implemented method for providing search results to a user, the method comprising:

determining a list of named entities within a data store on a user's computer;

identifying an event wherein the event comprises a user interaction with an article on the user's computer;

identifying a plurality of named entities within the event;

determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store;

responsive to determining the weight to associate with each of the plurality of named entities, automatically creating an implicit search query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight;

responsive to creating the implicit search query, retrieving from the user's computer a plurality of search results relevant to the search query; and

displaying the retrieved plurality of search results.

2. (Canceled)

3. The method of claim 1, wherein identifying a plurality of named entities within the event comprises identifying an entity in the event that matches an entity in the list of named entities.
4. The method of claim 1, wherein determining the list of named entities comprises monitoring instant messaging traffic.
5. The method of claim 1, wherein determining the list of named entities comprises analyzing an email data store.
6. The method of claim 1, wherein determining the list of named entities comprises analyzing a directory structure.
7. The method of claim 1, wherein determining the list of named entities comprises searching a contact list.
8. The method of claim 1, wherein determining the list of named entities comprises searching a news list.
9. The method of claim 1, wherein determining the list of named entities comprises part of speech tagging.
10. The method of claim 1, wherein the named entity comprises one of an email address, an instant messaging name, and a proper noun.
11. The method of claim 1, further comprising storing the named entity in a user profile.
12. The method of claim 1, further comprising identifying a plurality of named entities for a name by using first name only, last name only, and combinations thereof.

13. The method of claim 12, further comprising filtering out at least one of the plurality of named entities having a high document frequency (DF).

14. (Cancelled)

15. The method of claim 1, further comprising:

receiving a result set associated with the implicit search query; and

outputting the result set.

16. The method of claim 15, further comprising:

receiving an interest signal associated with one of the plurality of named entities; and

ranking the result set based at least in part on the interest signal.

17. (Cancelled)

18. (Cancelled)

19. A computer-implemented method for providing search results to a user, the method comprising:

determining a list of named entities within a data store on a user's computer;

receiving an event wherein the event comprises a user interaction with an article on the user's computer;

identifying a plurality of named entities in the event;

determining a weight to associate with each of the plurality of named entities based at

least in part on a frequency of each of the plurality of named entities within the data store;

responsive to determining the weight to associate with each of the plurality of named entities, automatically creating an implicit query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight;

responsive to creating the implicit search query, transmitting the implicit query to a search engine; and

receiving a result set from the search engine, the result set comprising one or more article identifiers; and responsive to an associated score exceeding a threshold, outputting the one or more article identifiers.

20. A computer-readable medium on which is encoded program code, the program code comprising:

program code for determining a list of named entities within a data store on a user's computer

program code for identifying an event wherein the event comprises a user interaction with an article on the user's computer;

program code for identifying a plurality of named entities within the event;

program code for determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store;

program code for automatically creating an implicit search query, responsive to determining the weight to associate with each of the plurality of named entities,

the implicit query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight;

program code for retrieving from the user's computer a plurality of search results relevant to the search query responsive to creating the implicit search query; and program code for displaying the retrieved plurality of search results.

21. (Cancelled)

22. The computer-readable medium of claim 20, wherein program code for identifying a plurality of named entities within the event comprises program code for identifying an entity in the event that matches an entity in the list of named entities.

23. The computer-readable medium of claim 20, further comprising program code for storing the named entity in a user profile.

24. The computer-readable medium of claim 20, wherein program code for determining the list of named entities comprises program code for monitoring instant messaging traffic.

25. The computer-readable medium of claim 20, wherein program code for determining the list of named entities comprises program code for analyzing an email data store.

26. The computer-readable medium of claim 20, wherein program code for determining the list of named entities comprises program code for analyzing a directory structure.

27. The computer-readable medium of claim 20, wherein program code for determining the list of named entities comprises program code for searching a contact list.
28. The computer-readable medium of claim 20, wherein program code for determining the list of named entities comprises program code for searching a news list.
29. The computer-readable medium of claim 20, wherein program code for determining the list of named entities comprises program code for part of speech tagging.
30. The computer-readable medium of claim 20, further comprising:
program code for receiving a result set associated with the implicit search query; and
program code for outputting the result set.
31. The computer-readable medium of claim 30, further comprising:
program code for receiving an interest signal associated with one of the plurality of
named entities; and
program code for ranking the result set based at least in part on the interest signal.
32. The computer-readable medium of claim 31, further comprising program code for identifying a plurality of named entities for a name by using first name only, last name only, and combinations thereof.
33. The computer-readable medium of claim 31, further comprising program code for filtering out at least one of the plurality of named entities having a high document frequency (DF).
34. (Cancelled)

35. (Cancelled)

36. A computer-readable medium on which is encoded program code, the program code comprising:

program code for determining a list of named entities within a data store on a user's computer;

program code for receiving an event wherein the event comprises a user interaction with an article on the user's computer;

program code for identifying a plurality of named entities in the event;

program code for determining a weight to associate with each of the plurality of named entities based at least in part on a frequency of each of the plurality of named entities within the data store;

program code for automatically creating an implicit query, responsive to determining the weight to associate with each of the plurality of named entities, the implicit query based at least in part on the plurality of named entities and the associated weight, the implicit search query focused on a named entity with a higher associated weight more than on a named entity with a lower associated weight;

program code for transmitting the implicit query to a search engine responsive to creating the implicit search query; and

program code for receiving a result set from the search engine, the result set comprising one or more article identifiers; and responsive to an associated score exceeding a threshold level of relevance, outputting the one or more article identifiers.

37. The method of claim 1, wherein the frequency of each named entity comprises an inverse document frequency of that named entity within the data store.

38. The method of claim 1, wherein the frequency of each named entity comprises a term frequency of that named entity within the data store.

39. (Cancelled)

40. The computer-readable medium of claim 20, wherein the frequency of each named entity comprises an inverse document frequency of that named entity within the data store.

41. The computer-readable medium of claim 20, wherein the frequency of each named entity comprises a term frequency of that named entity within the data store.

42. (Cancelled)

IX. Evidence Appendix

No evidence of the types described in 37 CFR § 41.37(c)(1)(ix) has been submitted during prosecution of the present application.

X. Related Proceedings Appendix

To the best knowledge of Appellants and Appellants' legal representative, there are no decisions rendered by a court or the Board that may directly affect, be affected by, or have a bearing on the decision of the Board in the instant appeal.